WHAT IS CLAIMED IS:

1. A method of gamma correction comprising

selecting lower and upper reference curves corresponding to selected reference gamma values;

generating a gamma correction curve from a corresponding gamma correction value;

cross-correlating the upper and lower reference curves with the gamma correction curve to generate a corresponding set of cross-correlation factors;

storing the set of cross-correlation factors indexed to the corresponding gamma value;

receiving an input value for gamma correction with the corresponding gamma value; and

operating on data from the upper and lower reference curves indexed by the input value with the cross-correlation factors to generate a gamma corrected output value.

2. The method of Claim 1, wherein selecting lower and upper reference curves comprises selecting lower and upper reference curves from a plurality of stored reference curves in response to the corresponding gamma correction value.

3. The method of Claim 1, wherein:

generating a gamma correction curve comprises generating a gamma correction curve from a corresponding gamma value and another gamma correction curve from another corresponding gamma value;

cross-correlating the upper and lower reference curves comprises cross-correlating the gamma correction curve with the lower and upper reference curves to generate a set of cross-correlation factors and cross-correlating the another gamma correction curve with the upper and lower to generate another set of cross-correlation factors; and

storing the set of cross-correlation factors comprises storing the set of cross-correlation factors indexed by the gamma correction value and storing the another set of cross-correlation factors indexed by the another gamma correction value.

4. The method of Claim 3, further comprising selecting between the stored set of cross-correlation factors and the stored another set of cross-correlation factors in response to a received one of the gamma correction and another gamma correction values.

5. The method of Claim 1, wherein cross-correlating the upper and lower reference curves comprises generating lower and upper cross-correlation factors and storing the set of cross-correlation factors comprises storing the lower cross-correlation factor in a look-up table and storing the upper cross-correlation factor in another look-up table.

6. The method of Claim 5, wherein generating lower and upper sets of cross-correlation factors comprises generating a lower set of cross-correlation factors corresponding to a lower set of input data values and an upper set of cross-correlation factors corresponding to an upper set of input data values.

7. A programmable gamma correction circuit comprising:

a memory space for storing a set of reference curves corresponding to selected reference gamma values;

selector circuitry for selecting in response to a received gamma value lower and upper reference curves from the stored set of reference curves;

a memory space for storing a set of cross-correlation factors, the set of cross-correlation factors accessed in response to the received gamma value and cross-correlating the selected upper and lower reference curves and a gamma correction curve corresponding to the received gamma value;

a first multiplier for multiplying a first correlation factor of the set of correlation factors with a value on the lower reference curve selected in response to an input value;

a second multiplier for multiplying a second correlation factor of the set of correlation factors with a value on the upper reference curve selected in response to the input value; and

an adder for adding outputs of the first and second multipliers for generating a gamma corrected output value.

8. The gamma correction circuit of Claim 7, wherein the memory space for storing a set of reference curves comprises a set of look-up tables.

9. The gamma correction circuit of Claim 7, wherein the memory space for storing a set of reference curves stores the set of reference curves as piecewise linear approximations.

10. The gamma correction circuit of Claim 7, wherein the memory space for storing a set of cross-correlation factors comprises a set of look-up tables.

11. The gamma correction circuit of Claim 10, wherein the set of look-up tables comprises a look-up table for storing cross-correlation factors associated with lower values of the received gamma value and another look-up table for storing cross-correlation factors associated with higher values of the received gamma value.

12. The gamma correction circuit of Claim 7, wherein the gamma correction circuit forms a portion of a video encoder.

13. The gamma correction circuit of Claim 7, wherein the gamma correction circuit forms a portion of a video decoder.

14. The gamma correction circuit of Claim 7, wherein the input values comprise luma values.

15. A gamma correction method comprising:

selecting reference curves corresponding to selected reference gamma values, selected points on the reference curves indexed by corresponding input values for gamma correction;

selecting a cross-correlation matrix cross-correlating the selected reference curves with a selected gamma correction curve;

receiving an input value for gamma correction; and

interpolating between points on the selected reference curves indexed by the received input value with the cross-correlation matrix to generate a gamma corrected output value.

16. The gamma correction method of Claim 15, wherein the cross-correlation matrix includes first and second entries and interpolating between corresponding points on the reference curves comprises:

multiplying a point on a first reference curve indexed by the input value with the first entry;

multiplying a point of a second reference curve indexed by the input value with the second entry; and

summing the results of the multiplication to generate the output value.

17. The gamma correction method of Claim 15 wherein selecting reference curves comprises selecting between a plurality of stored reference curves in response to a gamma value corresponding to the selected gamma correction curve.

18. The gamma correction method of Claim 15 wherein selecting the cross-correlation matrix comprises selecting between a plurality of cross-correlation matrices stored in memory and indexed by a gamma value corresponding to the selected gamma correction curve.

19. The gamma correction method of Claim 18 wherein the plurality of cross-correlation matrices are stored in a look-up table.

20. The gamma correction method of Claim 18 wherein the plurality of cross-correlation matrices are stored in a look-up table indexed by lower values of the gamma value and another look-up table indexed by higher values of the gamma value.